User Guide

For Network Attached Storage

Ver.2.3.0903

(For ADM 2.3)

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1. Introduction

Thank you for choosing ASUSTOR network attached storage (NAS).

From cross-platform file sharing to multimedia server applications to App Central, ASUSTOR NAS provides you with a rich assortment of features, allowing you to explore the unlimited potential of NAS.

Your NAS comes preloaded with ASUSTOR Data Master (ADM), an operating system developed by ASUSTOR. ADM provides you with an intuitive and user friendly interface. This user manual will introduce you to all the preloaded applications (Apps) on your NAS.

Online Resources

Type	URL
Forum (English)	http://forum.asustor.com
Downloads	http://www.asustor.com/service/downloads
Technical Support	http://www.asustor.com/service/online_support

Terms of Use

All ASUSTOR products have undergone stringent and comprehensive testing. Under normal user operation and within the warranty period, ASUSTOR will assume responsibility for any hardware failures. Before using this product, please read the End-User License Agreement (EULA) located at the end of this user manual.

2. Getting Started with ASUSTOR Data Master

This section will introduce you to the process of logging in, using Searchlight and using the taskbar in ASUSTOR Data Master (ADM).

2.1. Logging in to ASUSTOR Data Master

After installation and initialization, you can use the following methods to log in to your ASUSTOR NAS:

- Use ASUSTOR Control Center to scan your local area network for ASUSTOR NAS devices. Select your NAS and then click on the "Open" button to go to bring up the login screen.
- If you already know the IP address for your ASUSTOR NAS on your local area network, you can directly enter it into your web browser to connect to your NAS. For example: http://172.16.1.69:8000/
- If you are connecting to your ASUSTOR NAS remotely, you can enter your personalized hostname into your web browser to connect to your NAS. For example: http://john.myasustor.com:8000

  Reminder: When connecting remotely, please remember to register your NAS and then enable Cloud Connect under [Settings]→[Ease of Access]→[Cloud Connect]→[Enable Cloud Connect]. After configuring a Cloud ID for your NAS, you will be able to connect to it remotely using your customized hostname.

2.2. Searchlight

Developed by ASUSTOR, Searchlight is a rapid search technology that is built into ADM and provides quick and precise searches allowing you to easily find the files that you need. After logging in to ADM you will be able to find Searchlight's magnifying glass icon on the taskbar in the upper right-hand corner of the screen.

2.3. Taskbar

The ADM taskbar allows you to directly [Pin to taskbar], [Restore], [Minimize], [Close] any Apps that are on it. In the [Account] menu you will see items for [Settings], [Sleep], [Restart], [Restart], [Shut down] and [Sign out].

Selecting [Settings] will provide you with tabs for [Personal], [Volume Usage] and [Home Screen].

- Personal: Here, you can configure the account password, E-mail address, description and ADM language.
- Volume Usage: Here, you can view information regarding your hard disk storage volumes such as usage and storage quota.
- Home Screen: Here you can upload images to the NAS or select an image from the NAS to customize your desktop. You can also customize the ADM text colors, position of desktop wallpaper and remove desktop wallpaper.

3. Pre-Installed Apps

Pre-installed Apps include the configuration of function and service settings for hard disks and hardware. You can configure everything from system related settings to user access rights.

3.1. Settings

3.1.1. General

Here you can manage the system HTTP port and auto logout settings. Auto logout will logout users if they remain idle past the specified period of time.

- System HTTP Port: This is used to specify the port you wish to use to connect to ADM's web based user interface. You can access your NAS by opening a web browser and entering your IP address followed by a colon and the specified port number.

  For example: http://192.168.1.168:8000

- Timeout timer: For security concerns, users that remain idle past the specified period of time after logging on will be automatically logged off.

- Sign in page: Under Sign In Page Style you will be able to configure the following:

  - Sign In Page Title: The text entered here will be displayed on the sign in page.

  - Sign In Page Background Image: Here you can change the background image of the sign in page. The image formats currently supported are: JPG

  - Sign In Page Customized Image: Here you can choose to enable or disable the sign in page customized image. Using the crop function you can configure the position and size of the customized image. The image formats currently supported are: JPG

-

3.1.2. Network

Note: This function may differ depending on the NAS model in use.

Here you can configure the server name, LAN and Wi-Fi settings. Other settings include IP address, DNS server and default gateway.

- Server Name: An online name for your NAS.

- Default Gateway: The default gateway that you wish to use.

- DNS Server: Here you can set the DNS server that you wish to use. Should you choose to obtain your IP address via DHCP the system will automatically obtain the available DNS servers for you. If you choose to manually enter an IP address then you will have to manually enter a DNS server as well.

Reminder: Using an invalid DNS server will affect some network related functions. (i.e., Download Center). If you are uncertain about how to proceed, please choose to obtain your IP address automatically.

- Proxy: Here you can enable proxy server connections, allowing the NAS to connect to the internet via a proxy server.
    - Proxy Server: The address of the proxy server you wish to connect to. (Supports HTTP and HTTPS)
    - Port: The communications port of the proxy server.
    - Authentication: If the proxy server you are using requires authentication, you can enable it here and then enter your username and password.

See More

NAS 105 – Networking: A Beginner's Guide

NAS 307 – Networking: Link Aggregation

3.1.3. VPN

Here you can let your ASUSTOR NAS become a VPN client, and via PPTP or Open VPN, connect to a VPN server to access a virtual private network. ASUSTOR NAS supports the use of different connection settings files, allowing you to connect to the VPN server of your choice. The ASUSTOR VPN client currently supports the two most common connection protocols: PPTP and OpenVPN.

Reminder: The VPN client cannot be used simultaneously with the VPN Server. If you need to use the VPN client, please first stop any use of the VPN server.

See More

NAS 322 - Connecting Your NAS to a VPN

3.1.4. Regional Options

Here you can adjust the settings for date and time, display format, time zone and daylight saving time.

3.1.5. Hardware

Note: This function may differ depending on the NAS model in use.

Here you can configure settings for the LED indicators, buzzer, hard disk hibernation, power usage, fan speed and LCD display panel.

- System: Here you can choose to disable any of the LED indicators to save power. By selecting "night mode", only the system power LED indicator will be enabled. It will flash an orange light every 10 seconds. "Night mode scheduling" will allow you to configure the start time and duration of night mode. You can also configure settings for the buzzer and reset button here.

- Disk Hibernation: Your hard disks will enter hibernation mode when left idle for the period of time specified here. Once in hibernation, the hard disk LED indicator on the front of the disk tray will flash once every 10 seconds to indicate that the disk is hibernating. If an access error is detected on a hard disk, the LED indicator on the front of the disk tray will be lit red.

- Power: Here you can manage power usage settings such as Wake-On-LAN (WOL) and power scheduling.

- Fan Control: Here you can set the rotation speed for the fan. If you are not sure about which speed to select, you can simply select Auto. This will automatically adjust the fan speed in accordance with the temperature of the system.

- LCD Panel: You can have the LCD panel display a customized scrolling message or the local temperature. This function is only available on the following models: AS-604T, AS-606T, AS-608T.

- Sleep Mode: Here you can configure the time period the NAS will remain idle before automatically entering Sleep Mode (S3). In addition to RAM, all of the NAS's hardware will stop running in order to conserve energy.

Why won't my ASUSTOR NAS enter into Sleep Mode (S3)?

The following services will affect the NAS's ability to enter into Sleep Mode (S3) as they require hard disk access while running.

- Download Center, Takeasy download tasks, RSS scheduled downloads, unable to enter Sleep Mode (S3) when subscription downloads from multimedia websites are in progress
- Unable to enter into Sleep Mode (S3) when Surveillance Center is recording
- Unable to enter into Sleep Mode (S3) when the following Apps are syncing:Dropbox, Google Drive, ASUS WebStorage, BitTorrent Sync
- Unable to enter into Sleep Mode (S3) when the following Apps are executing backup tasks: HiDrive, RALUS, WonderBox, Xcloud
- XBMC or Boxee is installed

Reminder: If you choose to display the local temperature, the system will use your current IP address to determine the temperature at your present location. The results of this may vary, depending on your exact location.

Reset Button

If for some reason you cannot connect to your NAS, this button can be used to

return a portion of the settings to their default values.

- The system administrator account (admin) password will be reset back to "admin".
- The system HTTP and HTTPS ports will be reset back to 8000 and 8001 respectively.
- The system will revert to automatically obtaining an IP address. You can then use ASUSTOR Control Center to search for your NAS.
- ADM Defender will be reset and will allow all connections.

Reminder: You must hold the reset button down until you hear a "beep" for the settings mentioned above to be reset.

3.1.6. Notification

You can configure this setting to send you notification immediately in the event that the system encounters any problems.

- Send: Here you can set the accounts that will be used for sending e-mail or SMS notifications. Multiple accounts can be set up but only one may be used as the primary account.
- Receive: Here you can set up the accounts that will be used to receive e-mail and SMS notifications. You can also set the type of system notifications that will be received by these accounts.
- Push Notification: Here you can enable the push notification setting for the AiMaster mobile app which can be downloaded from the Apple App Store or Google Play. When designated system events occur, your ASUSTOR NAS will immediately send notification to the Apple/Google push notification server which will then forward it to your mobile device.

About Push Notification

If you wish to use this feature, you must first install AiMaster on your mobile device and enable push notifications on the device. Currently, AiMaster is available for both iOS and Android devices.

- Supports iOS 5.0 and onwards
- Supports Android 2.2 and onwards

Downloading AiMaster

In order to download AiMaster please open the App Store (for Apple devices) or

Google Play (for Android devices) on your mobile device and search for the keywords "asustor" and "AiMaster".

Warning: Push notifications are transmitted to your device from Apple/Google's push notification servers. A poor Internet connection or abnormalities in Apple/Google's push notification service could potentially prevent AiMaster from correctly receiving notifications.

3.1.7. ADM Defender

ADM Defender can protect your NAS from malicious Internet attacks, ensuring the security of your system.

- Firewall: Here you can block specific IP addresses or only allow specific IP addresses to access your NAS.
- Network Defender: After enabling this function, the client IP address will be blocked if there are too many unsuccessful login attempts within the specified time period. For example, in the graphic below, after a user has attempted 5 unsuccessful logins within a 10 minute time period, he/she will be blocked forever.

About Network Defender

Network Defender can protect you from malicious attacks and prevent hackers from trying to access your NAS. Supported protocols are as follows:

- ADM system login (HTTP & HTTPS)
- Windows File Service (CIFS/SAMBA)
- Apple Filing Protocol (AFP)
- File Transfer Protocol (FTP)
- Secure Shell (SSH)

3.1.8. ADM Update

Here you can obtain the latest version of ADM to ensure system stability and to upgrade software features.

- Live Update: After enabling Live Update, the system will notify you of any available updates when you log in to ADM.
- Manual Update: You can go to ASUSTOR's official website (http://www.asustor.com) to download the latest version of ADM.

3.1.9. Network Recycle Bin

When you enable Network Recycle Bin, the system will create a Recycle Bin "X" for each logical volume. For example, "Volume 1" will have a corresponding "Recycle Bin 1" created for it and "Volume 2" a "Recycle Bin 2". Any deleted files will then be moved to the Recycle Bin, letting you recover any accidentally deleted files.

About Network Recycle Bin

After enabling Network Recycle Bin, all files deleted via the following protocols will be moved to the Recycle Bin.

- Windows File Service (CIFS/SAMBA)
- Apple Filing Protocol (AFP)
- File Transfer Protocol (FTP)
- File Explorer

Once a Recycle Bin has been created, it cannot be removed.

3.1.10. Energy Saver

Energy Saver can help you to reduce power consumption when your NAS is inactive or being lightly used.

3.1.11. Ease of Access

Here you can configure all the necessary settings for remote access.

- Cloud Connect: Here you can obtain a Cloud ID for your NAS. By entering the Cloud ID into ASUSTOR client applications, you can access your NAS without having to enter the host/IP information.
- EZ-Router: Here you can set up your network router automatically for direct NAS access from any device with Internet access.

  Reminder: Your router must support UPnP/NAT-PMP. Please note that not all routers support automatic configuration. Please see the hardware compatibility list found on the ASUSTOR website for more information.

- DDNS: Here you can create or configure your DDNS account. DDNS allows you to use a persistent host name (i.e., nas.asustor.com) to connect to your NAS. You won't have to worry about remembering your NAS's IP address. This feature is often used in dynamic IP environments.

See More

NAS 221 - Remote Access - Using Cloud Connect™

NAS 224 - Remote Access - Manual Configuration

Compatibility - EZ-Router

3.1.12. Factory Default

Here you can restore the system back to its factory default settings. After this, the system will return to its pre-initialized state. For security reasons, you will be asked to enter the administrator password before performing this operation. You can then initialize the system again through Control Center or by logging into ADM.

Warning: After the system is restored to its factory default settings, all previous settings and files will be permanently deleted. You will not be able to recover these settings and files. Please ensure that you have backed up the data on your NAS before you begin this operation.

3.1.13. Registration

Here you can sign up for a personal account (ASUSTOR ID) and register your product. Once the product has been registered, your ASUSTOR ID will be automatically enabled.

Reminder: A valid ASUSTOR ID is required for downloading any apps from the App Central or applying Cloud ID service.

3.2. Services

Here you can configure network related services such as FTP server, Web server and MySQL server.

3.2.1. Windows

After enabling Windows File Service, you can access your NAS via any Windows operating system (i.e., Windows 7). Windows File Service is also known as CIFS or SAMBA. If you are using Windows Active Directory (hereafter referred to as "AD"), you can add your NAS to your AD domain.

- Workgroup: This is the workgroup on your local area network that your NAS belongs to.
- Local Master Browser: After enabling this option, your NAS will, from your local area network, collect the names of all other computers in its workgroup.

Reminder: Enabling this feature may prevent your hard disk(s) from going into hibernation.

About Windows Active Directory

After successfully adding your NAS to your AD domain, you can then configure access rights using the Domain Users, Domain Groups and Shared Folders settings found in the Access Control system app (see section 3.4 Access Control). AD users can then use

their own AD accounts to log in and access the NAS.

See More

NAS 102 - Introduction to File Transfer Protocols

NAS 106 – Using NAS with Microsoft Windows

NAS 206 – Using NAS with Windows Active Directory

3.2.2. Mac OS X

After enabling Mac OS X file service, you can access your NAS via any Mac OS X operating system (i.e., Mac OS X v10.7). This file transfer protocol is called AFP (Apple Filing Protocol). You can also use Time Machine to back up data to your NAS.

- Apple Filing Protocol (AFP): This is the protocol used when transferring files between Mac OS X and local area networks. Go to the Finder and click "Go" in the Finder menu, then select "Connect to Server." This will bring up the Connect to Server dialog box. Here you can enter the IP address that you want to connect to.

  For example： afp://192.168.1.168

- Bonjour Service Name: Your NAS will be identified by this name in the Finder.

- Time Machine Support: Here you can enable Time Machine support and select the shared folder that you wish to back up to. If multiple Mac users wish to access this feature simultaneously, please see NAS 159 – Time Machine: Best Practice for guidance.

About Bonjour

Bonjour, also known as zero-configuration networking, has been widely used in Apple related products. It will scan your vicinity for other Apple devices and then let you directly connect to them without having to know their actual IP addresses.

After enabling this service, you will be able to see your NAS in the left hand panel of the Finder under "Shared". Simply click on your NAS to connect to it.

See More

NAS 102 - Introduction to File Transfer Protocols

NAS 108 – Using NAS with Apple Mac OS X

NAS 159 – Time Machine: Best Practice

3.2.3. NFS

After enabling NFS, you will be able to access your NAS via UNIX or Linux operating systems.

About NFS

After enabling NFS service, you can configure access rights using the Shared Folders setting found in the Access Control system app (see section 3.4 Access Control). This option will be hidden if NFS service has not been enabled.

See more

NAS 102 - Introduction to File Transfer Protocols

NAS 109 - Using NAS with Linux

3.2.4. FTP Server

After enabling the FTP server setting, you will be able to access your NAS via any FTP client program (i.e., FileZilla). FTP server access rights are the same as those for the system (ADM). Should you wish to change or configure these access rights, you may do so using the shared folders setting found in the Access Control system app (see section 3.4 Access Control).

- Unicode support: Please enable this option if your FTP client program supports Unicode.
- Enable anonymous: Enabling this option will allow FTP client programs to access your NAS anonymously, without the need for a username or password. For security reasons, this is not recommended.
- Enable SSL/TLS: Enable encryption for FTP connections.
- Maximum number of all FTP connections: The maximum number of simultaneous FTP connections allowed.
- Maximum number of connections per IP: The maximum number of connections allowed per IP or system.
- Max upload rate: The maximum upload speed per connection. 0 represents no limitation.
- Max download rate: The maximum download speed per connection. 0 represents no limitation.
- Passive FTP: To minimize the security concerns of connecting from a server to a client, a type of connection mode called Passive Mode (PASV) was developed. When a client program starts to connect, it will notify the server to activate Passive Mode.

About Passive FTP

Passive mode FTP can be used to overcome the problem of active mode FTP being blocked by firewalls. Passive FTP makes the FTP client establish all connections to the FTP server, as opposed to the web host supplying the return port. Firewalls typically allow passive FTP connections without requiring additional configuration information.

See More

NAS 102 - Introduction to File Transfer Protocols

3.2.5. WebDAV

After enabling WebDAV you can access your NAS via HTTP or HTTPS protocol by using a Web browser or other client programs.

See More

NAS 102 - Introduction to File Transfer Protocols

NAS 208 – WebDAV: A Secure File Sharing Alternative to FTP

3.2.6. Web Server

ADM comes built-in with an independent web server (apache) that you can use to host your own website. After enabling this feature, the system will create a shared folder called "Web" that will serve as the web server's root directory.

- PHP register_globals: This feature is not enabled, by default. Enable this if a website program specifically requests you to. Otherwise, it is recommended that you leave this feature disabled for system security reasons.

- Virtual Host: You can use this feature to simultaneously host several websites on your NAS.

See More

NAS 321 – Hosting Multiple Websites with a Virtual Host

3.2.7. MySQL Server

ADM comes pre-installed with MySQL, which you can use for website databases.

Reminder: You can manage your MySQL server with phpMyAdmin which can be downloaded and installed from App Central.

- Reset Password: If you happen to forget your MySQL login password, you can reset the password for the "root" account (The default password is "admin"). This is also the default administrator account.

- Reinitialize Database: Here you can reinitialize your entire MySQL database. Upon reinitialization, all of your MySQL databases will be erased.

About MySQL

For the MySQL administrator account, the default username is "root" and the default password is "admin". For security reasons, please remember to change the password for this account.

3.2.8. Terminal

You can enable SSH service if you wish to manage your NAS over Secure Shell (SSH). If you wish to transfer data to your NAS through SFTP (Secure FTP) you can enable that here as well.

Note: For security reasons, SSH only allows the "admin" account or the "root" account to log in. The passwords for both these accounts are identical.

3.2.9. Rsync Server

After enabling Rsync server, your NAS will become a backup server and will allow remote backup from another ASUSTOR NAS or any other Rsync-compatible servers.

- Enable Rsync server: If you wish to permit encrypted backup for clients, please enable support for encrypted transmission via SSH. If you enable this feature the system will then automatically enable SSH service (3.2.8 Terminal).

- Manage Rysnc User: If you wish to create restrictions on the Rsync connections that can back up to your NAS, please click on **Manage Users** to create different Rsync user accounts.

  Reminder: Rsync accounts are different and independent from system accounts.

- Add New Backup Modules: Click on **Add** to create a new backup module. Each backup module will then correspond to a physical path within the system. When an Rsync client connects to your NAS, it will be able to select a backup module. Data will then be backed up to the module's corresponding physical path.

See More

NAS 259 – Using Remote Sync (Rsync) to Protect Your Data

NAS 351 – Remote Sync (Rsync): Best Practice

3.2.10. TFTP Server

TFTP (Trivial File Transfer Protocol) is a simple type of file transfer protocol that is used to transfer configurations or small files, providing no authentication.

- TFTP root folder: Specifies the folder on the ASUSTOR NAS that TFTP clients can access.

- TFTP client permission: Specifies the permissions for TFTP clients. If you select "Read Only", TFTP clients will only be able to view the contents of the TFTP root folder. If you select "Read & Write", TFTP clients will be able to modify the contents of the TFTP root folder.

- Client connections allowed: Selecting "All Connections", will allow all TFTP clients to connect to the NAS. You can also choose to limit connections to TFTP clients from a specified range of IP addresses.

- Timeout: Here you can specify the timeout time which is used to terminate idle connections, providing an additional later of security.

3.3. Storage Manager

3.3.1. Volume

Note: This function may differ depending on the NAS model in use.

Storage space on your NAS consists of logical volumes which are made up of a single disk or multiple disks combined together. Here you can set up new storage space for your NAS and, according to your data protection needs, select the most suitable RAID level. In order to maintain data integrity, you may only use internal disks when creating storage space for your NAS. ADM does not support the use of external disks for storage space.

Reminder: The RAID levels that you may employ will depend on your NAS product model and the number of disks that you are using.

When setting up new storage space, ADM offers the following two options:

- Quick Setup: You need only specify the requirements for the storage space (i.e., you wish to have a higher level of data protection). Based on this and the number of disks you have, ADM will automatically create a storage volume and select an appropriate RAID level for it.

- Advanced Setup: Based on the current number of disks, you can manually select a RAID level or set up a spare disk.

Reminder: In order to optimize disk space utilization, it is recommended that you use disks of the same size when creating storage space.

About RAID

In order to provide optimal storage space utilization and data protection, ADM supports multiple RAID levels allowing you to select the appropriate level for your needs. The following volume types levels are all supported by ADM:

Non-RAID Volume Types

- **Single:** Only uses a single disk in the creation of storage space. This

configuration does not offer any type of data protection.

- **JBOD:** An acronym for "just a bunch of disks", JBOD uses a combination of two or more disks to create storage space. The total storage capacity is the capacities of all the disks added together. The advantage of this configuration is that it allows you to use different sized disks together and provides a large amount of storage space. The downside is that it does not offer any sort of data protection.

RAID Volume Types

- **RAID 0:** Uses a combination of two or more disks to create storage space. The total storage capacity is the capacities of all the disks added together. The advantage of this configuration is that it allows you to use different sized disks together and provides a large amount of storage space. Also, data in RAID 0 volumes is accessed in parallel which provides improved performance. The downside is that RAID 0 does not offer any sort of data protection.

- **RAID 1:** In RAID 1 your data is written identically on two disks, thereby producing a "mirrored set". Exactly the same data is stored on the two disks at all times. RAID 1 protects your data from loss should one of your disks fail. RAID 1's advantage is that it offers protection for your data by providing data redundancy. The downside of this configuration is that when combining two disks of differing sizes, the total storage space will be equal to the size of the smaller disk. Therefore, you will be unable to use a portion of the larger disk.

  Total available storage space = (size of smaller disk) * (1)

- **RAID 5:** Combines three or more disks to create a storage space that is able to support one failed disk. Should one of your disks fail, your data will still be protected from loss. In the event of disk failure, simply replace the failed disk with a new one. The new disk will automatically be accommodated into the RAID 5 configuration. The advantage of using RAID 5 is that is that it provides data protection through data redundancy. The downside to using RAID 5 is that when combining disks of differing sizes, the total storage space will be calculated based on the size of the smallest disk.

  Total available storage space = (size of smallest disk) * (total number of disks – 1)

- **RAID 6:** Combines four of more disks to create a storage space that is able to support two failed disks. Should two of your disks fail, your data will still be protected from loss. In the event of disk failure, simply replace the failed disks with new ones. The new disks will automatically be accommodated into the RAID 6 configuration. The advantage of using RAID 6 is that it is able to provide superior data protection through data redundancy. The downside to using RAID 6 is that when combining disks of differing sizes, the total

storage space will be calculated based on the size of the smallest disk.

Total available storage space = (size of smallest disk) * (total number of disks – 2)

- **RAID 10 (1+0):** Combines four or more disk to create a storage space that is able to support multiple failed disks (as long as the failed disks do not belong to the same "mirrored set"). RAID 10 provides the data protection of RAID 1 along with the access efficiency of RAID 0. With respect to data protection, RAID 10 uses the RAID 1 method of having the exact same data written identically on two disks, producing "mirrored sets". These "mirrored sets" are then combined together in a RAID 0 configuration. RAID 10 requires an even number of four or more disks. When combining disks of differing sizes, the total storage space will be calculated based on the size of the smallest disk.

  Total available storage space = (size of smallest disk) * (total number of disks / 2)

See More

NAS 251 – Introduction to RAID

NAS 352 – Online RAID Level Migration and Capacity Expansion

3.3.2. Disk

Here you can check on the status of all your disks. You can also inspect their S.M.A.R.T. information and conduct tests on your disks.

- S.M.A.R.T. Info: S.M.A.R.T. is an acronym for Self-Monitoring Analysis and Report Technology. It is a type of self-monitoring mechanism for disks that detects and reports on various indicators of reliability, with the hope of anticipating failures.

- Disk Doctor: Here you can check your disks for bad sectors or conduct S.M.A.R.T. tests.

3.3.3. iSCSI

iSCSI is a type of network storage technology that offers high expandability and low implementation costs. Through existing network infrastructure and iSCSI you can use your NAS to expand existing storage space or have it act as a backup destination. iSCSI consists of two ends, a target and an initiator. The initiator is used to search for iSCSI hosts and to set up targets.

- IQN: IQN (iSCSI Qualified Name) is the unique name for each iSCSI target. This name should not be the same as any of the other target IQNs on other hosts.

- CHAP Authentication: CHAP authentication can be used to verify a user's identity. If you choose to use CHAP authentication, a CHAP password must first be entered from the initiator for verification before it can connect to the target.

- Mutual CHAP Authentication: Mutual CHAP authentication requires both the target and the initiator to have usernames and passwords. When establishing a connection, the target and the initiator will have to authenticate each other using their respective credentials.

- LUN Pool: Here you can check on the status of all iSCSI LUNs and assign corresponding iSCSI targets.

- iSNS Server: iSNS (Internet Storage Name Service) iSCSI management. Here, you can register iSCSI targets with the iSNS Server, for convenient centralized management.

See More

NAS 308 – Introduction to iSCSI

3.3.4. MyArchive

Note: This function may differ depending on the NAS model in use.

MyArchive is a function designed especially for data management and sharing, giving you added flexibility when using multiple hard disks for data backup or exchange. When MyArchive hard disks have been inserted into the MyArchive disk bay, you will immediately be able to access the data on the hard disk.

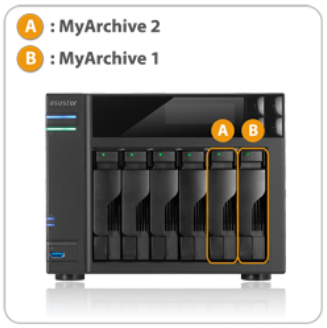
- MyArchive Hard Disk: Users will need to first convert hard disks into MyArchive hard disks before being able to use the MyArchive function.

- MyArchive Disk Bay: Located in the last one or two disk bays, towards the right side of the NAS (the number and position of the disk bays will depend on the model in use). If you wish to use the MyArchive function please remember to first leave a MyArchive disk bay empty.

- 2-bay NAS models will have one allocated MyArchive disk bay.

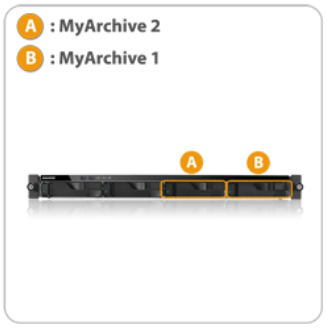
- 4-bay NAS models and up will have two allocated MyArchive disk bays.

4 bay Tower



6 bay Tower

8 bay Tower



4 bay Rackmount

9 bay Rackmount

See More

NAS 255 – Using MyArchive

Video - MyArchive

Accessories: Hard Disk Tray

3.4. Access Control

3.4.1. Local Users

Here you can manage (add, edit or remove) the local users in the system and assign their access rights to shared folders.

Reminder: If you only have a few users on the system, you can set up the access rights for each of them one by one.

Within ADM, a single user's access rights with regards to shared folders will depend on the user's existing access rights and on the access rights of the group that the user belongs to. Both sets of access rights will be checked against each other in order to determine priority (please see Appendix 7.1). For convenience, the system provides a preview mode which allows you to first preview any changes that you make to access rights.

About Local Users

After initialization, the system will automatically create user accounts for "admin" and "guest". "admin" is the default administrator account and possesses a majority of the access rights. If you wish, you can change the access rights and password for this account. "guest" is the default guest account which is only suitable for use with CIFS/SAMBA and AFP. This account does not possess login and authentication rights, so you cannot change its password.

See More

Appendix 7.1 – Permission Mapping Table

3.4.2. Local Groups

Here you can manage (add, edit or remove) the local groups in the system and assign access rights for shared folders.

Reminder: If you have a relatively large number of users on the system, you can conveniently assign access rights by user group instead of assigning access rights for each user one by one.

Within ADM, a single user's access rights with regards to shared folders will depend on the user's existing access rights and on the access rights of the group that the user belongs to. Both sets of access rights will be checked against each other in order to determine priority (please see Appendix 7.1). For convenience, the system provides a preview mode which allows you to first preview any changes that you make to access rights.

About Local Groups

After initialization, the system will automatically create two user groups, "administrators" and "users". "administrators" is the default administrator group.

If a user is added to this group, they will possess a majority of the administrator access rights. The "admin" account belongs to the "administrators" group by default and cannot be removed from it.

See More

Appendix 7.1 – Permission Mapping Table

3.4.3. Domain Users

Here you can view all AD user accounts and manage their access rights to shared folders once your NAS has been successfully added to an AD domain.

Reminder: ASUSTOR NAS can support more than 200,000 AD users and groups. When joining an AD domain for the first time, depending on the number of users and groups, it may take a while for all of them to become visible.

See More

Appendix 7.1 – Permission Mapping Table

3.4.4. Domain Groups

Here you can view all AD user groups and manage their access rights to shared folders once your NAS has been successfully added to an AD domain.

Reminder: ASUSTOR NAS can support more than 200,000 AD users and groups. When joining an AD domain for the first time, depending on the number of users and groups, it may take a while for all of them to become visible.

See More

Appendix 7.1 – Permission Mapping Table

3.4.5. Shared Folders

Here you can manage your shared folders and set up their access rights in relation to users and user groups. Shared folders allow your NAS to become a file server. They are fundamental in sharing files with the outside world. Consequently, correctly setting up their access rights is very important in the management of your data.

- Invisible in "Network" or "My Network Places": This setting only applies if you are using Microsoft Windows. When you enable this setting, your NAS will cease to automatically appear in "Network" or in "My Network Places". Please note that enabling this setting will not affect the connection to your NAS in any way.

- Encrypt this shared folder: Here you can choose whether or not you want to encrypt your shared folder and whether or not you want to auto-mount it at system startup. Should you choose to encrypt your folder, after the system restarts, you will have to manually enter the password for the folder in order to access it. Encrypted folders are normally used for the storage of critical or confidential data. Should you lose your NAS you still needn't worry about your data leaking out and falling into the wrong hands.

Reminder: You can choose to enable or disable encryption for folders even after they have been created. Encryption is available for use with all shared folders and is not just limited to system default folders. The access speed for encrypted folders will normally be slower than for unencrypted folders.

Warning: When choosing to use encrypted shared folders, please make it a point to remember your password. Should you forget your password, the data in the shared folder will become unrecoverable.

- NFS Privileges: Here you can set NFS privileges for individual folders after first enabling NFS service.

About Shared Folders

After initialization, the system will automatically create a shared folder "public". By default, all users can access the files in this folder. Additionally, the system will automatically create a personal folder for each user (using the user's account name) that by default, can only be accessed by the mentioned user.

- Windows ACL: Here you can choose to enable or disable Windows ACL for specified shared folders.

About Windows ACL

1. After enabling Windows ACL for a shared folder, the shared folder and all subfolders and files contained within it can be assigned user or group permissions.
2. The following shared folders do not support Windows ACL permissions: Home, User Homes, PhotoGallery, Web, Surveillance, MyArchive, Network Recycle Bin, virtual devices, external devices (USB hard drives, optical drives).
3. After enabling Windows ACL you will be able to use ADM's File Explorer or Microsoft Windows Explorer to configure permissions. After disabling Windows ACL you will only be able to configure permissions from within ADM's File Explorer.
4. If you enable Windows ACL and then later decide to disable it, all file and folders will be re-assigned with Read & Write permissions for all users.
5. No matter if you are using Windows ACL or not, users will still require shared folder and file permissions in order to access files.

- Folder – Access Rights: Shared folders access rights are the first level of access rights that will be examined. You can edit them here.

See More

Appendix 7.1 – Permission Mapping Table

3.4.6. App Privileges

Here you can configure the users' or user groups' access rights to apps. For example, if a particular user's account is denied access to the Surveillance Center app, once he/she logs in, he/she will not be able to see the Surveillance Center app icon on their ADM home screen. The user will have no way of opening or accessing the app.

- Web applications may be public in nature (i.e., WordPress) or have their own account management systems (i.e., Joomla). Therefore, there is no way to restrict access to them through ADM.

- With regards to domain users, the system only offers the option of setting their File Explorer access rights.

3.5. Backup & Restore

3.5.1. Remote Sync

Remote Sync (Rsync) can allow your NAS to be used as a backup destination or backup source. When using your NAS as a backup source, you can choose to back up the data from your NAS onto another remote ASUSTOR NAS or Rsync compatible server. When your NAS acts as a backup destination, you can back up the data from another remote ASUSTOR NAS or Rsync compatible server onto your NAS.

Reminder: If you wish to use Remote Sync while using your NAS in conjunction with another remote ASUSTOR NAS, please remember to enable the Rsync server feature on the remote NAS (Services -> Rsync Server). For more information please see 3.2.9 Rsync Server.

- Use encrypted transmission: If you choose to use encrypted transmission, you will have to enter the other host's SSH connection information in addition to your Rsync account information.

- Use 1 on 1 folder synchronization: If you decide to use 1 on 1 folder synchronization, all the data in the designated destination folder will be synchronized with the data in your source folder (you may only select one folder). The contents of both folders will be exactly the same. If you decide not to use this feature, all your chosen source folders (you may select multiple folders) will be copied one by one to the destination folder.

- Keep extra files at the destination: Once the copying and synchronization of files is completed, the data at the source and destination should be exactly the same. However, sometimes there are extra files present at the destination. These files are only present at the destination but not at the source. By enabling this option, these extra files will be kept at the destination and will remain untouched.

- Archive mode (incremental backup): After enabling this feature, successive backup jobs (after your first backup job) will only copy the data that has changed since your last backup job (block level). For example, if you have made some small changes to a 10 MB file, incremental backup will only copy the portions that you have made changes to. This can significantly reduce bandwidth usage.

- Compress data during the transfer: During backup you can compress the data that is being transferred thereby lowering bandwidth usage.

- Keep file metadata: When you enable this option, certain file properties (permissions, extensions, attributes, owner, groups, etc.) will be sent along with the file to the destination.

- Support sparse files replication: You will only need to enable this option when the data that you wish to back up contains sparse files. Normally, you will not have to enable this option.

- Mission Mode: Sometimes backup jobs may be stopped because of various connection problems with a busy server on the other end. ASUSTOR's Mission Mode option allows you to configure the number of connection attempts and time interval for connection attempts, ensuring for the successful completion of your backup job. This also gives IT administrators a significant amount of flexibility when configuring backup jobs.

See More

NAS 259 – Using Remote Sync (Rsync) to Protect Your Data

NAS 351 – Remote Sync (Rsync): Best Practice

3.5.2. FTP Backup

FTP backup can allow for your NAS to be used as a backup destination or backup source. When using your NAS as a backup source, you can choose to back up the data from your NAS onto another remote ASUSTOR NAS or FTP server. When your NAS acts as a backup destination, you can back up the data from another remote ASUSTOR NAS or FTP server onto your NAS.

- Mission Mode: Sometimes backup jobs may be stopped because of various connection problems with a busy server on the other end. ASUSTOR's Mission Mode option allows you to configure the number of connection attempts and time interval for connection attempts, ensuring for the successful completion of your backup job.

Reminder: If you wish to use FTP backup while using your NAS in conjunction with another remote ASUSTOR NAS, please remember to enable the FTP server feature on the remote NAS (Services -> FTP Server). For more information please see 3.2.4 FTP Server.

About FTP Backup

Normally, FTP backup is suitable for use with a majority of FTP servers. However, incompatibility issues do arise from time to time. Therefore, it is recommended that you use two ASUSTOR NAS units to execute your backup jobs.

See More

NAS 257 - FTP Backup

3.5.3. Cloud Backup

Note: This function may differ depending on the NAS model in use.

Using Cloud Backup, you can schedule regular backups of your NAS data to a cloud storage space or back up the data from a cloud storage space onto your NAS. Currently supported cloud storage services are as follows:

- Amazon S3

Mission Mode: Sometimes backup jobs may be stopped because of various connection problems with a busy server on the other end. ASUSTOR's Mission Mode option allows you to configure the number of connection attempts and time interval for connection attempts, ensuring for the successful completion of your backup job.

See More

NAS 254 – Cloud Backup

3.5.4. External Backup

Here you can choose to backup data from USB or eSATA external hard disks to your NAS or backup data from your NAS to these external hard disks. In addition to supporting two-way backup, this feature also supports scheduled backups, making sure that your data is always backed up.

- Mission Mode: Sometimes backup jobs may be stopped because of various connection problems with a busy server on the other end. ASUSTOR's Mission Mode option for external backup allows you to configure the time interval for connection attempts, ensuring for the successful completion of your backup job. This also gives IT administrators a significant amount of flexibility when configuring backup jobs.

3.5.5. One Touch Backup

Note: This function may differ depending on the NAS model in use.

One Touch Backup allows you to preset the function of the USB backup button found on the front of your NAS. Here you can designate your preferred backup direction and directory. After setting up One Touch Backup and plugging in an external USB drive to your NAS, you will only have to push the USB backup button to execute your backup job.

- Transfer Modes:

- From USB device to NAS: The system will back up the entire contents of the USB drive, based on the existing directory structure, to the NAS folder path that you set.

- From NAS to USB device: The system will take the contents of the specified NAS directory and, based on the existing directory structure, back it up to the USB drive's root directory.

- Backup Methods:

  - Copy: If you select this method, your system will copy your data from the back up source to the destination, be it the USB device or your NAS. Files or folders of the same name will be replaced and extra files at the destination will be kept. This method is suitable for one time backups.

  - Synchronization: If you select this method, all the data in the designated destination folder will be synchronized with the data in your source folder. The contents of both folders will be exactly the same. Extra files at the destination will be automatically deleted. This method is suitable for ensuring your most recent data is backed up and for scheduled weekly backups. For example, you may choose to have regularly scheduled backups of your NAS's data so you always keep a USB drive plugged into your NAS for this purpose.

  - Save in new folder: After selecting this method, you will then have to specify a naming format for the new folder. Every time you run a backup job the system will create a new folder according to this format and then proceed to back up your data into the folder. This method is suitable for those who wish to keep complete copies of each backup job, or those who just wish to back up their regular data from external devices onto their NAS. For example, you may back up the data from your work computer onto your USB drive and then proceed to back up the data from your USB drive onto your NAS at home.

About One Touch Backup

Once the USB backup button is held down for 1.5 seconds, One Touch Backup will be triggered. During the backup process, the USB backup LED indicator light will blink continuously. After the backup process has finished, the light will cease to blink and will then return to its previous state. If you wish to disable One Touch Backup, you can adjust the settings accordingly.

3.5.6. System Settings

Here you can export or restore system settings in .bak format (file extension). This feature also supports scheduled backup, which means that you can create scheduled backup jobs and then export the settings to a specified location on your NAS.

3.6. App Central

Note: This function may differ depending on the NAS model in use.

You can use App Central to download apps that are suitable for use with your NAS. App Central provides you with a rich variety of applications, allowing you to install software that is uniquely suited to your needs. Whether your interests lie in digital entertainment, e-commerce, blogging or website construction, App Central has it all.

- Before you begin downloading, you must first register and log in with a valid ASUSTOR ID. Please see Registration 3.1.13 for more information.
- All newly installed apps will be immediately enabled after installation has finished.
- Should you choose to remove an app, all settings and information relating to the app will be removed as well. If you wish to reinstall the app at a later date, the system will not be able to return the app to its previous state with all of its previous settings and information still intact.

About App Central

App Central may contain applications developed by ASUSTOR, open source software and software by third-party developers. For applications that have been officially verified, ASUSTOR provides a limited warranty with regards to its installation and execution. If you have any questions regarding a particular application, please contact the developer directly.

ASUSTOR cannot guarantee the stability of your system if you choose to install applications that have not been officially verified. Should you choose to do this, you will have to assume responsibility for all risks. Before you start using App Central you must first read and agree to the Terms of Use.

3.7. External Devices

3.7.1. Disk

Here you can view and format all USB or eSATA external hard disks that are connected to your NAS. Supported file systems are as follows:

- FAT32: for use with Windows and Mac OS X
- NTFS: for use with Windows
- HFS+: for use with Mac OS X
- EXT4: for use with Linux

Reminder: If your device cannot be detected, please try connecting again using another cable or port.

See More

Compatibility – Hard Disk

3.7.2. Printer

Here you can view all the USB printers that are connected to your NAS and their respective printing logs. Additionally, ASUSTOR NAS also supports Apple AirPrint.

Reminder: ASUSTOR NAS supports up to three USB printers.

- Management: Here you can activate and configure device names for AirPrint. You can send printing instructions from your Apple mobile device to your printer when they are part of the same local area network as your NAS.
- Clear All Waiting Jobs: Here you can choose to cancel all waiting print jobs.

See More

Compatibility – USB Printer

3.7.3. Wi-Fi

After connecting your USB Wi-Fi adapter to your NAS, you can view its detailed information here.

About Using Wi-Fi with your NAS

If you wish to use Wi-Fi with your NAS, please take a look at the compatibility list on the ASUSTOR website before purchasing a Wi-Fi adapter. Wi-Fi signal strength and stability will vary according to the hardware that you are using (e.g., Wi-Fi network card and wireless access point) and any physical barriers that are present. Therefore, ASUSTOR has no way of guaranteeing Wi-Fi signal strength or stability. For best results, a wired Ethernet connection is recommended.

See More

Compatibility – USB WiFi Dongle

3.7.4. UPS

A UPS can provide backup power to your NAS in the event of a power outage. Using a UPS can protect your data and NAS from sudden shutdown or service interruptions.

- Network UPS: Here you can setup your NAS to be the network UPS server (Master mode) and set its IP address, when the UPS's USB cable is connected to your NAS. Other devices that are in the same local area network will be then set to slave mode. In the event of a power outage, the master and slave devices will immediately detect this stoppage in power and then determine whether or not to commence shutdown procedures based on the time period that has been set.
- Shut down: When the NAS receives notification of a power outage from the UPS, it will begin normal shutdown procedures.

- Safe mode: When the NAS receives notification of a power outage from the UPS, it will stop all services in accordance with normal procedures and unmount all storage volumes. If you have enabled the "In the event of a power outage, enable the NAS to return to its previous state once power has been restored" setting (configurable via Settings → Hardware → Power), once the NAS has been shut down under safe mode, it will automatically turn on once power has been restored. (This function is available for use with AS-6/7 series devices).

Reminder: When the NAS is configured as the network UPS server (Master mode), the default username is "admin" and the password is "11111" when connecting to the network UPS server.

See More

Compatibility - UPS

3.7.5. Bluetooth Devices

After you have connected your Bluetooth device to the NAS, you will be able to view its detailed information here.

About Using Bluetooth Devices with the NAS

If you wish to use Bluetooth devices with the NAS, please check ASUSTOR's online compatibility list before purchasing. The signal strength and stability will vary according to the hardware that you are using and any physical barriers that are present. Therefore, ASUSTOR has no way of guaranteeing Bluetooth signal strength or stability. It is recommended that you connect your Bluetooth device within the maximum effective range (around 10 meters).

You can directly stream music from the NAS using iTunes and SoundsGood via Bluetooth speakers.

See More

Compatibility – Bluetooth

3.7.6. External Optical Drive

After connecting an external optical drive (CD, DVD, Blu-ray) to your NAS via USB, you can use File Explorer to directly access any files that you have backed up to optical media and even transfer files from your optical media to your NAS via drag and drop for future access.

About Using External Optical Drives with your NAS

This function only provides data access and does not support the audio and video playback of optical media.

Certain optical drives will require additional power in order to operate properly. If you find that your optical drive is not spinning or reading correctly, please use a USB Y-cable to add additional power.

See More

Compatibility – External Optical Drive

3.8. System Information

3.8.1. About This NAS

Here you can view general information about your NAS such as the hardware model number, software version, BIOS version and present state of the system.

3.8.2. Network

Here you can review information about your network settings (i.e., IP address and MAC address).

3.8.3. Log

Here you can review logs of all system events. These logs include the system log, connection log and file access log. ASUSTOR NAS also supports Syslog. This can allow you to employ centralized management by sending your system event information to a Syslog server.

- System log : All log entries about system events
- Connection log : All log entries about system connections.
- File access log : All log entries about file access.

3.8.4. Online Users

Here you can view the users that are currently logged in to ADM or any users that are using other transfer protocols to connect to your NAS.

About Online Users

ADM is able to display any users who connect to your NAS using the following methods:

- ADM system login (HTTP & HTTPS)
- Windows File Service (CIFS/SAMBA)
- Apple Filing Protocol (AFP)

- File Transfer Protocol (FTP)
- Secure Shell (SSH)
- iSCSI
- WebDAV

3.8.5. Dr. ASUSTOR

Dr. ASUSTOR performs checkups based the current state of your system, settings and connectivity. After performing these checkups, Dr. ASUSTOR will diagnose any problems and provide you with appropriate recommendations. Additionally, you can also export a health record for your NAS in order to help ASUSTOR engineers quickly identify the causes of any problems. The health record contains information pertaining to the NAS's system event logs, core information and basic configuration files.

3.9. Activity Monitor

Note: This function may differ depending on the NAS model in use.

Activity Monitor dynamically monitors your NAS. Here you can view current usage information such as:

- CPU Usage
- Memory (RAM) Usage
- Network Traffic
- Storage Space Usage
- Resources Being Used by System Programs

3.10. File Explorer

File Explorer comes pre-installed with ADM and can be used to browse and manage the files on your NAS. File Explorer displays accessible directories to users based on the access rights that are assigned to them. Additionally, ADM supports three simultaneously open File Explorer windows. You can easily make copies of files by dragging and dropping them into a different File Explorer window.

- ISO Mounting: You no longer need to burn ISO files onto CDs in order to read them. Now you can select ISO files from your NAS and directly mount them to shared folders ("read only" access rights). You can then use your computer to access and read them. Later, when you are finished with the files, simply unmounts them.
- Share Link: You can use Share Links to share files with people who don't have accounts on your NAS. Share Links allow you to instantly create download links for

designated files that you want to share. Expiry dates can also be set for each Share Link that you create, allowing for safe and flexible management.

- Permissions: Right-clicking on a file or folder and then selecting "Properties" followed by the "Permissions" tab will allow you to configure detailed access permissions for the file or folder.

  - If the top-level shared folder does not have Windows ACL enabled, the options for configuring permissions will be:

    Owner: The owner of the folder or file
    Group: The group that has been assigned to the folder or file
    Others: All other users on the system or network that are not owners or part of the group that has been assigned to the folder or file.

    The permission types that you will be able to configure are: RW (Read & Write), RO (Read Only) and DA (Deny Access).

  - If the top-level shared folder has Windows ACL enabled, you will be able to configure file permissions for all users and groups. In total, there will be 13 types of configurable permissions. These types of permissions are as follows:

Reminder: An individual file or folder can utilize up to a maximum of 250 Windows ACL permissions (including inherited permissions).

Traverse folder / execute file
List folder / read data
Read attributes
Read extended attributes
Create files / write data
Create folders / append data
Write attributes
Write extended attributes
Delete
Delete subfolders and files
Read permissions
Change permissions
Take ownership

- Include inheritable permissions from this object's parent: This option is enabled by default. The system will automatically configure sub folders and files to inherit permissions from the object above it. Disabling this option will reject all inheritable permissions and only keep newly added permissions.

- Replace all child object permissions with inheritable permissions from this object: Enabling this option will replace all sub folder and file permissions with ones from the parent object.

- Effective Permissions: Clicking on this button and then selecting a user from the list will allow you to view the user's effective permissions with regards to the specified folder or file.

- My Computer: My Computer allows you to use File Explorer to browse the files on your local computer. This allows you to use to use the File Explorer interface to manage all the files stored on your NAS and local computer.

- Task Monitor: Task monitor allows you to view the progress, speed and status of downloads and uploads. Additionally, Task Monitor's multitasking and background operation allow you to simultaneously upload and download multiple files. You no longer need to wait for tasks to be completed one by one.

- Java allows File Explorer to browse data on the local computer as well as proving support for the dragging and dropping of files to File Explorer which are then uploaded to the NAS. Please install Java Runtime Environment (JRE) 5 or later versions.

- External Optical Drive: After connecting an external optical drive (CD, DVD, Blu-ray) to your NAS via USB, you can use File Explorer to directly access any files that you have backed up to optical media and even transfer files from your optical media to your NAS via drag and drop for future access.

Note:

1. This function only provides data access and does not support the audio and video playback of optical media.
2. Certain optical drives will require additional power in order to operate properly. If you find that your optical drive is not spinning or reading correctly, please use a USB Y-cable to add additional power.

Reminder: Currently, File Explorer can only show up to the first 10000 files contained within folders.

3.11. FTP Explorer

FTP Explorer is ADM's built-in FTP client. It can be used to connect to different FTP servers and execute direct file transfers. This increases transfer efficiency as the file transfer process does not require the use of any computers. FTP Explorer supports the following functions:

- Site management, allowing you to configure multiple sets of FTP server connection information
- Drag and drop file transfers
- Encrypted transmission protocols (SSL/TLS)
- Resuming downloads
- Custom transfer speeds

See More

NAS 225 - Introduction to FTP Explorer

4. From App Central

In addition to the built-in apps that come with ADM, every ASUSTOR NAS comes with several pre-installed apps. You can choose whether you want to keep or remove these apps. At your convenience, you can also browse through and download any additional apps that peak your interest from App Central.

4.1. Download Center

Download Center allows you to easily download and save files to your NAS. Your NAS can effectively replace your computer in helping you with any download jobs. This provides you with data protection and energy saving benefits. An ASUSTOR NAS consumes far less power during operation than a normal computer does. No longer will you have to leave your computer on for long periods of time while downloading files. Download Center supports HTTP, FTP, and BitTorrent downloads along with the scheduling of download tasks and the limiting of download and upload speeds.

Furthermore, Download Center supports selective downloading with respect to BitTorrent downloads. This gives you the ability to select and download only the files that you wish to from within a torrent. You no longer need to waste bandwidth and storage space downloading unnecessary files that you don't want. Finally, you can remotely control Download Center using our exclusive mobile app (iOS and Android).

- BitTorrent Downloads: When you upload torrent files to Download Center, the system will automatically create a new download task and then proceed to add this task to the download list. Download Center also supports directly inputting the torrent's download link as well as the use of magnet links.

- HTTP/FTP Downloads: Download Center supports HTTP and FTP downloads. You only need to paste or enter the link of your choice. The system will then immediately begin your download.

- RSS Subscriptions and Downloads: RSS downloading (also known as Broadcatching) is a type of technology that allows you to select the items you wish to download from within the contents of RSS feeds. Additionally, Download Center also offers an RSS automatic downloader. In accordance with your settings, the system will regularly update RSS feeds and then proceed to download items based on your set keywords and preferences. This is frequently used with items that require regular downloading. For example, weekly TV shows.

- Search: Download Center allows you to use keywords to search for files that you wish to download.

See More

NAS 162 – Introduction to Download Center

NAS 265 – Automating Download Center

4.2. Surveillance Center

Surveillance Center allows you to manage an array of IP cameras and features Live View and Playback functions. All video recorded from IP cameras can be directly and safely stored on the NAS. Using Surveillance Center's exclusive playback interface you can review previously recorded video at any time.

Surveillance Center also supports several different recording modes such as schedule, motion detection and alarm trigger. Additionally, you also have the option of receiving notification in response to specific events. Notifications are sent by either SMS or e-mail.

- Settings: The installation wizard will guide you through the simple process of setting up Surveillance Center. You will be able to add new cameras, set video formats, and schedule recording times. You are also able to add new cameras or make changes to your original settings at any time.

- Live View: Here you can view live feeds from all cameras that have been set up. You can also control and monitor camera functions such as PTZ (pan, tilt, zoom), preset points, snapshots, manual recording and sound controls.

- Playback: You can simultaneously play back previously recorded video from multiple cameras. Should you discover any unusual events, you can use the Snapshot or Export functions to transfer the selected images or video to a local computer.

See More

NAS 161 – Introduction to Surveillance Center

NAS 261 – Advanced Setup for Surveillance Center

Compatibility – IP Camera

4.3. UPnP AV Media Server

The UPnP AV Media Server app can turn your NAS into your home's multimedia streaming server. As long as you have devices that support UPnP or DLNA (for example, SONY BRAVIA TV or PlayStation3®), you can directly browse and stream the pictures, music and videos stored on your NAS.

Additionally, you can use UPnP/DLNA compatible applications on your mobile device (for example, a notebook, iPhone or iPad) to stream multimedia files from your NAS.

- You only need to have your multimedia files stored in the shared folders "Media" or "Music" to be able to broadcast them. UPnP Multimedia Server will automatically scan designated directories for supported multimedia files.

- UPnP AV Multimedia Server currently only supports on-the-fly transcoding for photos and music.

Reminder: The media formats that are playable may vary between devices.

About UPnP AV Multimedia Server

UPnP AV Multimedia Server supports the following file formats:

- Video: 3GP, 3G2, ASF, AVI, DAT, FLV, ISO, M2T, M2V, M2TS, M4V, MKV, MPv4, MPEG1, MPEG2, MPEG4, MTS, MOV, QT, SWF, TP, TRP, TS, VOB, WMV, RMVB, VDR, MPE
- Audio: 3GP, AAC, AC3, AIFC, AIFF, AMR, APE, AU, AWB, FLAC[1], M4A, M4R, MP2, MP3, OGG Vorbis[1], PCM, WAV, WMA
- Photo: BMP, GIF, ICO, JPG, PNG, PSD, TIF, RAW Image[1] (3FR, ARW, CR2, CRW, DCR, DNG, ERF, KDC, MEF, MOS, MRW, NEF, NRW, ORF, PEF, PPM, RAF, RAW, RW2, SR2, X3F)

[1] You must first enable real time transcoding for these files in order to play them.

See More

NAS 168 – Your Home Media Center

4.4. iTunes Server

The iTunes Server app can turn your NAS into your home's audio and video streaming center. It allows you to share music and movies from your NAS with computers in the same network environment.

- After enabling the iTunes server app and adding music files to the "Music" shared folder, open iTunes on your PC or MAC. You will see your NAS under the "Shared" heading in the left hand panel of the iTunes window. Click on it to begin browsing and streaming your music.
- If you wish to restrict clients' access to your music, you can set up a password from within the iTunes Server app.
- iTunes Server supports pairing with the iOS Remote app.

Reminder: Music files that are newly added to your NAS may not immediately appear inside iTunes. This is because the iTunes Server app scans your directories for new music at regularly scheduled intervals. Rest assured that all newly added music files will eventually appear inside of iTunes.

About iTunes Server

iTunes Server supports the following file formats:

- Audio: AIF, M4A (AAC & Apple Lossless), M4P, M4R, MP3, WAV
- Playlist: M3U, WPL
- Video: M4V, MOV, MP4

See More

NAS 165 – Introduction to iTunes Server

NAS 231 - Using Remote with iTunes Server

4.5. SoundsGood

SoundsGood is a Web music player that allows you to listen to all the music stored on your NAS via a Web browser in addition to browsing through and managing your entire music collection.

- Personalized settings: SoundsGood provides personalized music collections and playlists. You can configure any folder on the NAS as SoundsGood's media source and can further configure the media source as personal or shared.
- Music collection editing: SoundsGood has a built-in ID3 tag editor, letting you immediately edit the ID3 tags in your music collection.

About SoundsGood

SoundsGood supports the following file formats:

- Supported audio formats for browser：MP3, WAV, Ogg
- Supported audio formats for transcoding through browser: AIFF, Flac
- Supported Audio formats for local speaker：MP3, WAV, Ogg, AIFF, Flac
- Local audio output support：HDMI, USB, Audio Jack*

*Suitable for use with AS-302T/AS-304T/AS-202TE/AS-204TE models

See More

Compatibility – USB DAC

4.6. VPN Server

ASUSTOR's VPN Server supports both PPTP and Open VPN protocols, turning your NAS into a VPN Server and allowing you to connect remotely to your NAS and safely access resources from your internal network.

- Configuring the ASUSTOR NAS as a VPN server:
  Log in to ADM and then open App Central. Select "ASUSTOR Apps" from the left-hand panel and then search for and install "VPN Server".

- Connecting the ASUSTOR NAS to a VPN server:
  Log in to ADM and then click on Settings and then select "VPN".

Reminder: The VPN client cannot be used simultaneously with the VPN Server. If you need to use the VPN client, please first stop any use of the VPN server.

See More

NAS 322 – Connecting Your NAS to a VPN

NAS 323 - Using Your NAS as VPN Server

4.7. Takeasy

Takeasy allows you to conveniently download online videos and playlists, giving you options to select the type of video file and video quality you want.

- To install Takeasy, log in to ADM, open App Central and then search for "Takeasy".

- Supported websites include: YouTube, Vimeo, Youku, Tudou, Fvlcd.com

- Integrated YouTube channel subscriptions allow your NAS to automatically download the newest content from your favorite YouTube channels.

- Online media playback support allows you to preview any downloads in progress and also playback already downloaded videos.

Reminder: The quality of downloaded videos will depend on the quality of the uploaded video. For example: an uploaded video with a quality of 1080p will allow you to download a video of 1080p.

4.8. ASUSTOR Portal

With ASUSTOR Portal there's no need to turn on your computer when you want to play videos or browse the internet. You need only simply connect your NAS to any HDMI ready display. Within ASUSTOR Portal you will be able to use Boxee and XBMC which instantly turn your NAS into a multimedia player. ASUSTOR Portal also integrates the Google Chrome browser, YouTube channels and monitoring of live video feeds from Surveillance Center.

- To install ASUSTOR Portal, log in to ADM, open App Central and then search for and install "ASUSTOR Portal" under "ASUSTOR Apps".

- ASUSTOR Portal provides customizable display information including: IP address, server name, time, ADM, Chrome, YouTube

- You can configure a default start app on ASUSTOR Portal (For example: ASUSTOR Portal, ADM, Chrome, YouTube, Surveillance Center or XBMC). Once configured, the App will automatically launch when you open ASUSTOR Portal without having to be launched via the main ASUSTOR Portal interface.

- You can also configure the desktop wallpaper, shortcuts to favorite websites, resolution, overscan and screensaver for ASUSTOR Portal.

See More

NAS 135 - Introduction ASUSTOR Portal (English only)

NAS 136 - Controlling ASUSTOR Portal

Video - Using ASUSTOR Portal

Video - Using The ASUSTOR Remote

Video - Using Your ASUSTOR NAS as a Home Media Center - Part I

Video - Using Your ASUSTOR NAS as a Home Media Center - Part II

Video - Using XBMC With Your ASUSTOR NAS

Compatibility - HDTV

Accessories: Remote Control, USB IR Receiver, IR Remote Control Kit

4.9. Antivirus Protection

ASUSTOR NAS provides antivirus protection, effectively protecting your NAS's critical data and preventing malware from spreading.

4.10. Download Center Helper

Download Helper is a web browser add-on from ASUSTOR. With Download Helper, when you are web browsing and come across a file that you want to download, simply right-click on the download link and tell your NAS to download the file for you. You can also view the status of any downloads in progress and execute simple management on current download tasks including pausing, stopping and deleting tasks or even downloading directly to your local computer.

- Download Helper can be downloaded for Chrome from the Chrome Web Store (https://chrome.google.com/webstore/detail/adm-download-center-helpe/plakpcmpdoljmbpbndlkanblnchogifl)

- Download Helper can be downloaded for FireFox from the FireFox Add-ons page (https://addons.mozilla.org/en-US/firefox/addon/ASUSTOR_Download_Helper/)

Reminder: In order to use Download Helper, Download Center must first be installed on the NAS

5. Utilities

ASUSTOR's utilities currently include Control Center, Backup Plan and Download Assistant which allows you to use your PC/Mac to more conveniently manage your NAS, backup your PC/Mac data to your NAS or manage downloads in Download Center.

5.1. Control Center

Control Center can conveniently locate and configure any ASUSTOR NAS in your local area network. You can also manage your NAS without having to log in to ADM. You can download the latest version of Control Center from the ASUSTOR Website. (http://www.asustor.com/service/downloads)

5.2. Backup Plan

Backup Plan can help you to back up the data from your Windows PC/server to an ASUSTOR NAS, FTP site, Local PC or other network location. You will also be able to quickly restore any data you back up from your Windows PC/server. You can download the latest version of Backup Plan from the ASUSTOR Website. (http://www.asustor.com/service/downloads)

5.3. Download Assistant

Download Assistant allows you to manage download tasks from the Download Center App on your NAS without logging in to ADM. You can download the latest version of Download Assistant from the ASUSTOR Website. (http://www.asustor.com/service/downloads)

6. Mobile Apps

ASUSTOR's mobile apps currently include: AiData, AiMaster, AiRemote, AiDownload, AiMusic and AiFoto. You can download these apps by scanning the provided QR codes below.

- **AiData**

  AiData allows you to intuitively browse and manage the files on your NAS from the convenience of your mobile device. AiData also integrates Dropbox/Box.net/Google Drive cloud storage services, allowing users to easily access their data from across different clouds. More Information

iOS	Android Phone	Android Pad

See More

NAS 243 - Using AiData on Your Mobile Devices

- **AiMaster**

  AiMaster is ASUSTOR's dedicated NAS management app for mobile devices. It allows everyday users and IT professionals to easily manage functions on multiple ASUSTOR NAS devices. More Information

iOS	Android

See More

NAS 242 - Using AiMaster on Your Mobile Devices

- **AiRemote**

  AiRemote allows you to control all types of functionality on ASUSTOR Portal, from the basic up, down, left, right controls used with the Boxee or XBMC interfaces to the play, pause, rewind, fast forward and volume controls used when playing videos. Furthermore, when using the Chrome web browser in ASUSTOR Portal, AiRemote provides a Touchpad Mode giving you intuitive control over your web browsing. More Information

iOS	Android

See More

NAS 135 – Controlling ASUSTOR Portal

Video - Using XBMC With Your ASUSTOR NAS

Video - Using ASUSTOR Portal

- **AiDownload**

  AiDownload is a mobile app that interfaces with ASUSTOR's Download Center to provide you with mobile download management. AiDownload allows you to search, download, configure settings and monitor your downloads. More Information

iOS	Android Phone	Android Pad

- **AiMusic**

  AiMusic allows you to stream music from your NAS to your mobile device, letting you enjoy your entire music collection while on the go. More Information

iOS	Android

- **AiFoto**

  AiFoto is ASUSTOR's photo management mobile app that interfaces with Photo Gallery on ASUSTOR NAS devices. It allows users to easily upload, browse and manage photos on their NAS. More Information

iOS

7. Appendix

7.1. Permission Mapping Table

Y \ X	Deny	Read & Write	Read Only	No Settings
Deny	Deny	Deny	Deny	Deny
Read & Write	Deny	Read & Write	Read & Write	Read & Write
Read Only	Deny	Read & Write	Read Only	Read Only
No Settings	Deny	Read & Write	Read Only	Deny

X: User access rights for shared folders

Y: Group access rights for shared folders

Priority of access rights: Deny Access > Read & Write > Read Only > No Settings

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